In the Claims

1. (previously amended) A method for increasing a boundary layer strength of a workpiece manufactured of a ceramic comprising the steps of:

providing a ceramic workpiece, the temperature of which is not elevated above room temperature and which does not comprise zirconia;

providing a tool which has at least a partially rounded contour with a predetermined diameter, the tool comprising at least the same order of hardness as the ceramic workpiece;

contacting the ceramic workpiece with the tool within a predetermined surface area, said predetermined surface area being less than the total surface area of the ceramic workpiece and being selected based upon the composition of the workpiece;

producing a plastic deformation on the predetermined surface area; and

generating internal compressive strain within the ceramic workpiece in the vicinity of the predetermined surface area;

wherein the predetermined diameter for the tool does not exceed a critical value ranging from about .1 mm to about 4 mm, the critical value depending upon the composition of the ceramic workpiece selected such that, upon contacting the ceramic workpiece with the tool, generation of damage in the form of brittle fracture processes in the predetermined surface area is substantially avoided and the boundary layer strength of the ceramic workpiece is increased.

2. (previously amended) The method of claim 1 wherein the critical value ranges from about .1 mm to about 1 mm.

3. (previously amended) The method of claim 1 wherein the tool has an inherent momentum and is directed onto the ceramic workpiece surface at rest, on which the boundary layer of the ceramic workpiece is deformed by introduction of the momentum of the tool.

4. (previously amended) The method of claim 1 wherein the ceramic workpiece surface is subjected to plastic deformation in a plurality of predetermined surface areas over the surface of the ceramic workpiece by repeated blows of the tool or by the application of a plurality of tools acting upon the ceramic workpiece surface.

5. (previously amended) The method of claim 1 wherein the tool comprises at least one spheres, which is driven onto the ceramic workpiece surface by means of a blasting installation, operated on compressed air or on an airless blasting means.

6. (previously amended) The method of claim 5 wherein the material of the sphere comprises the same or a similar material as that of the ceramic workpiece to be machined on its surface.

7. (original) The method of claim 1 wherein the tool comprises a hammer.

8. (original) The method of claim 1 wherein the tool comprises a nail.

9. (original) The method of claim 1 wherein the tool comprises a roller.

10. (previously amended) A method of increasing a boundary layer strength of a workpiece manufactured of a ceramic comprising the steps of:

contacting a ceramic workpiece in which, the temperature has not been elevated above room temperature and does not comprise zirconia, with a tool having a predetermined diameter and has at least a partially rounded contour within a predetermined surface area, the tool comprising at least the same order of hardness as the ceramic workpiece, said predetermined surface area being less than the total surface area of the ceramic workpiece and being selected based upon the composition of the workpiece;

wherein the predetermined diameter for the round contour tool does not exceed a critical value ranging from about .1 mm to about 4 mm, the critical value depending upon the composition of the ceramic workpiece selected such that upon contacting the ceramic workpiece with the round contour tool, generation of damage in the form of brittle fracture processes in the predetermined surface is substantially avoided and the boundary layer strength of the ceramic workpiece is increased.

11. (previously amended) The method of claim 10 wherein the critical value ranges from about .1 mm to about 1 mm.

12. (previously amended) The method of claim 10 wherein the tool has an inherent momentum and is directed onto the ceramic workpiece surface at rest, on which the boundary layer of the ceramic workpiece is deformed by introduction of the momentum of the tool.

13. (previously amended) The method of claim 10 wherein the ceramic workpiece surface is subjected to plastic deformation in a plurality of predetermined surface areas over the surface of the ceramic workpiece by repeated blows of the tool or by the application of a plurality of tools acting upon the ceramic workpiece surface.

14. (previously amended) The method of claim 10 wherein the tool comprises at least one sphere, which is driven onto the ceramic workpiece surface by means of a blasting installation, operated on compressed air or on an airless blasting means.

15. (previously amended) The method of claim 14 wherein the material of the sphere comprises the same or a similar material as that of the ceramic workpiece to be machined on its surface.

16. (original) The method of claim 10 wherein the tool comprises a hammer.

17. (original) The method of claim 10 wherein the tool comprises a nail.

18. (original) The method of claim 10 wherein the tool comprises a roller.

19. (currently amended) A method the increasing a boundary layer strength of a workpiece manufactured of a ceramic comprising the steps of:

providing a ceramic workpiece having a temperature at or below room temperature that does not comprise zirconia, the temperature of the ceramic workpiece not being elevated above room temperature;

providing a tool having a partially rounded contour and a diameter ranging from about .1 mm to about 4 mm, the tool comprising at least the same order of hardness as the ceramic workpiece;

impacting the ceramic workpiece with the tool within a working surface area of the ceramic workpiece, the working surface area being less than the total surface area of the ceramic workpiece;

creating a plastic deformation on the working surface area of the ceramic workpiece to generate internal compressive strain within the ceramic workpiece in the vicinity of the working surface area such that brittle fractures of the ceramic workpiece are substantially avoided and the boundary layer strength of the ceramic workpiece is increased.